

In the initial state (low level of  $\sim 60$  v. on the terminal 2) the left hand half of the tube is closed and on its anode there is a high voltage level; the right hand half of the tube is open through the divider  $R_1, R_3$ . At this stage a voltage  $U_1$  is set up on the cathode resistance.

50X1-HUM

50X1-HUM

-16- (cont)

oscillator package is given in ~~fig~~ fig 5.33.0  $\bar{D}$  and is intended for generation of square pulses of adjustable duration when negative voltage drops are applied at its input.

In the computer, this package is used in the control ~~the~~ device, generation of control pulses both in punched tape and magnetic tape storages and for generation of synchronizing pulses.

The cathodes of the two halves of the tube are connected to terminal 11 (earth). The equal anode resistances  $R_8$  and  $R_9$  with the compensating inductances  $L_1$  and  $L_2$  are connected to terminal 1 (anode voltage). The

50X1-HUM

50X1-HUM

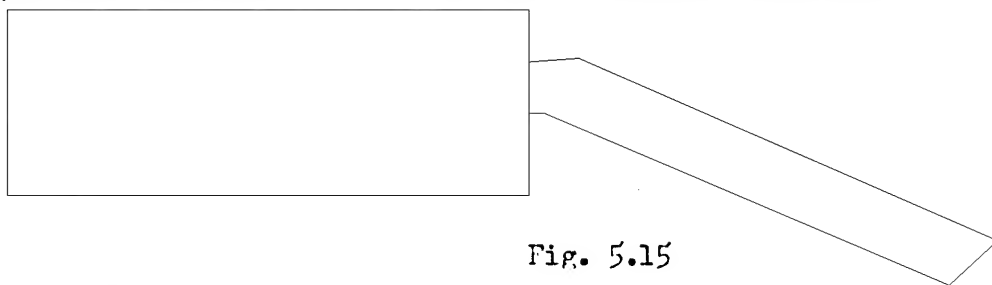
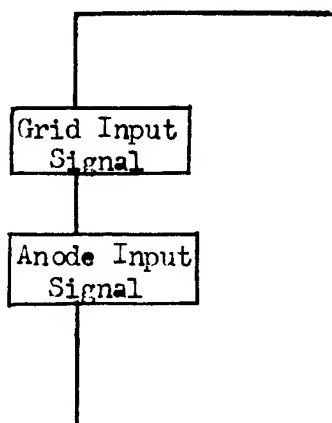


Fig. 4.14

Fig. 5.15



Input  
Signal  
Volts

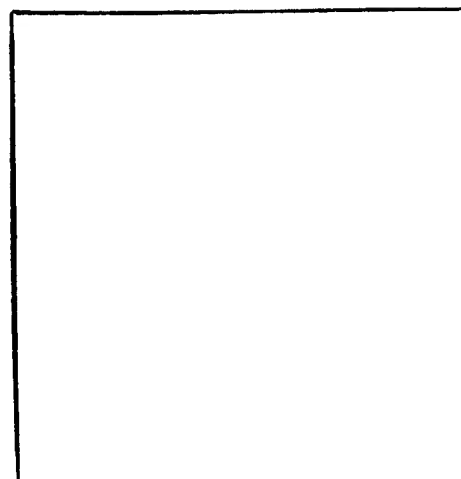


Fig. 4.16

Symbol of the Single Digit Binary Counter

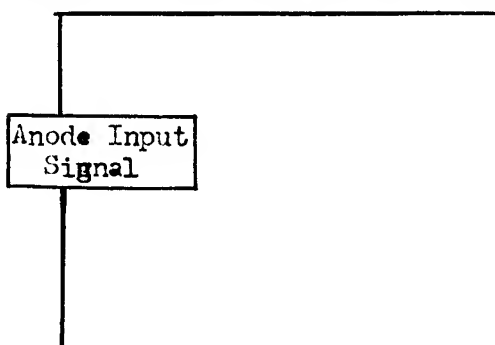
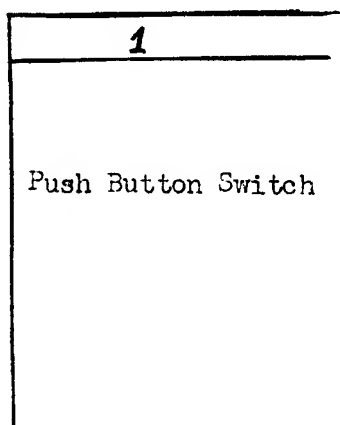


Fig. 4.27



50X1-HUM

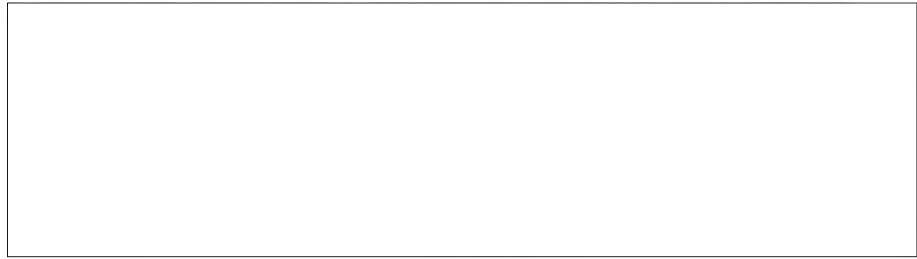


Fig. 5.14

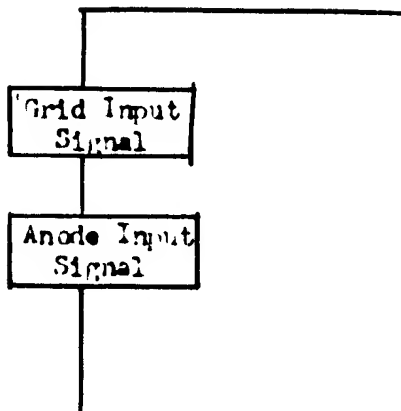


Fig. 5.15

Input  
Signal  
Volts

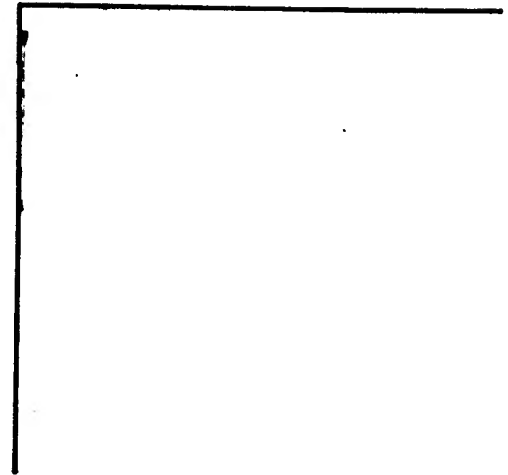


Fig. 5.16

Symbol of the Single Digit Binary Counter

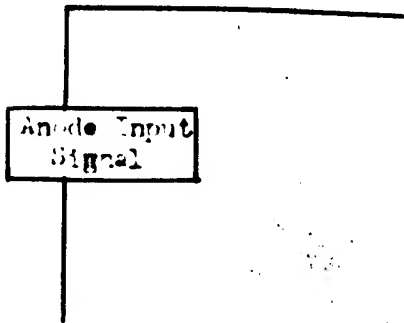
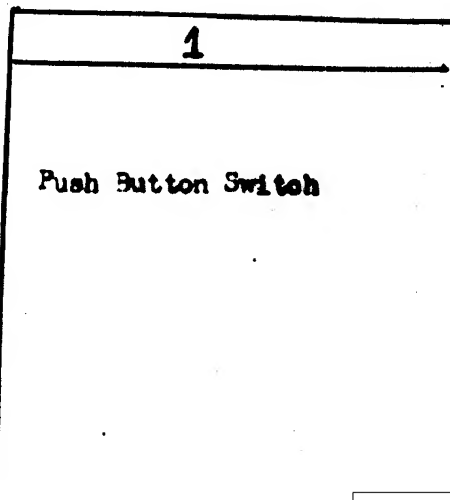


Fig. 5.27



50X1-HUM

ILLEGIB

**Page Denied**

Next 6 Page(s) In Document Denied

This instruction can be used in various ways. This instruction permits for example, to call stop in a certain stage of the programme, to introduce or to exclude printing of the result; and permits to call to address some special subroutine of the programme, beginning at some particular stage etc. The place of the programme with the instruction "E 3 K" at the instruction of stop computer, can be consider as a system of the control points of the programme. At the execution of the instruction "E 3 K", signal w is preserved, which was generated in the preceding cycle.

The fourth operation of control transfer has code "24" and is performed on the instruction "E 4 a".

The instruction "E 4 a" transfers control to the instruction in location "a" at the beginning of the execution of the cycle operation, and to the next instruction after finishing the cyclic operation.

The instruction "E 4 a" is used only with the instruction "Start cycle n" (H 4 n) and put after the group of the instructions, which are performed repeatedly by the help of the instruction "Start cycle n" (H 4 n). At the instruction (E 4 a) we must put the address of the instruction with which the cycle must be repeated.

Operation of start of cycle has code "25" and is performed on the instruction "Start cycle n" (H 4 n). On the instruction "Start cycle n" (H 4 n) the group of instructions, beginning from the instruction in the location a and finishing in the instruction "E 4 a" is performed repeatedly.

The word "n" is specified as the difference between the maximum and the minimum significant values of variable addresses and can have up to 11 binary digits. If on the instruction "Start cycle n" (H 4 n) the addresses of several instructions are changed, the word "n" for all these instructions must be equal and their addresses must be only the complete locations or only the incomplete locations, correspondingly. When the addresses of the complete locations are changed, the word "n" must have a mark of one (1) in the 12th digit.

SECRET

SECRET

In the instruction with variable addresses, only the last (maximum) variable address is recorded.

At the execution of the instruction "Start of cycle n" ( $H 4 n$ ) in the first cycle from the address of variable instruction is subtracted the word "n" and the address of the first (minimum) location is formed, but in the last cycle, zero is subtracted and address of the last (maximum) location is formed. The addresses are changed from the maximum significant value of the addresses by one in the case of incomplete locations and by two in the case of complete locations.

Number of cycles in the first case is equal to  $(n+1)$  and in the second case this is equal to  $(\frac{n}{2}+1)$ .

Operation of summation of words has code "26" and is performed on the instruction "Summarize a" ( $C M a$ ). The instruction "Summarize a" executes the addition ( $C M a$ ) of the word in the location "a" with the contents of the adder. The overflow signal of the adder is blocked. The carry one from the sign digit is added to the first digit of the adder.

The operation is designed to calculate the control sumcheck with reference to magnetic tape and punched tape storages.

Operation of change of instruction has code 30 and is performed on the instruction "change by a" ( $U 3 a$ ). On the instruction "Change by a" ( $U 3 a$ ) the contents of location 'a' are transferred to the instruction register, and, in the next cycle is summarized with the instruction selected for execution; after the execution of obtained instruction, the register is cleared.

The operation "Change" ( $U 3$ ) is designed to change the instruction together with general way of the change of the instruction by the arithmetical device. The addresses of the instruction and the number of the operation can be changed. Two instructions "Change a," ( $U 3 a_1, U 3 a_2$ ) can be located one after another.

At the execution of the operation "Change" ( $U 3$ ) signal  $v$  generated in the preceding cycle is preserved.

SECRET

50X1-HUM

SECRET

- 10 -

Other Operations :

Operation of reference to punched tape has code "11" and is performed on the instruction:  $\prod \prod a_1$

$$\begin{matrix} 1C \\ a_2 \end{matrix}$$

This instruction executes recording of the contents of some "C" from the punched tape to the magnetic drum storage beginning with the location "a" and ending in the location "a2" inclusive of both.

Operation of reference to magnetic tape for reading has code "31" and is performed on the instruction:  $\prod \prod a_1$

$$\begin{matrix} 2C \\ a_2 \end{matrix}$$

This instruction executes recording of the contents of some "C" on the magnetic tape to the magnetic drum storage beginning from location "a" and extending upto the location "a2", both inclusive.

Operation of printing has code "32" and is performed on the instruction "Print" ( $\prod 4$ ).

Operation of punch has code "33" and is performed on the instruction "Punch". ( $\prod 4$ ).

The instruction punch the contents of the adder.

Operation of computer stop has code "37" and is performed on the instruction "Stop a" ( $0ca$ ). The instruction "Stop a" ( $0ca$ ) stops the execution of the programme on the next instruction and records the word from the location "a" into the adder.

Operation jump of interval during printing has code "34" and is performed on the instruction "Interval" ( $4H$ ).

The instruction "Interval" ( $4H$ ) executes jump of interval on the paper tape before printing the next result.

For jump of interval "a" the instruction "Interval" ( $4H$ ) is necessarily used "a" times.

Operation of reference to magnetic tape for recording has code "31" and is performed on the instruction ~~SECRET~~  $\prod \prod a_1$

$$\begin{matrix} 3C \\ a_2 \end{matrix}$$

This instruction executes re-writing on the some "C" of the magnetic tape from the magnetic drum memory, beginning from location "a" and extending upto location "a2" both inclusive.

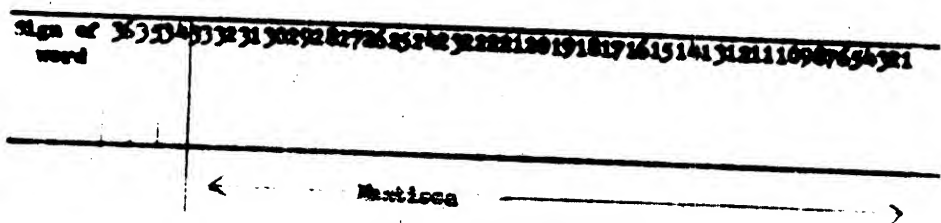
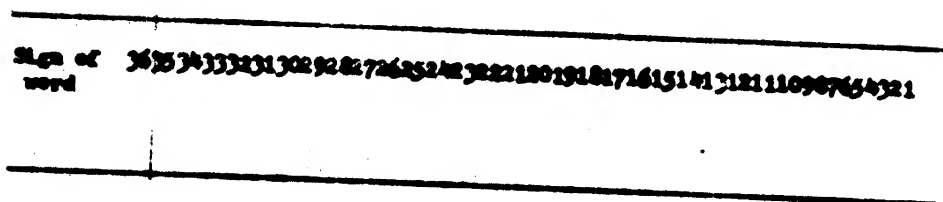
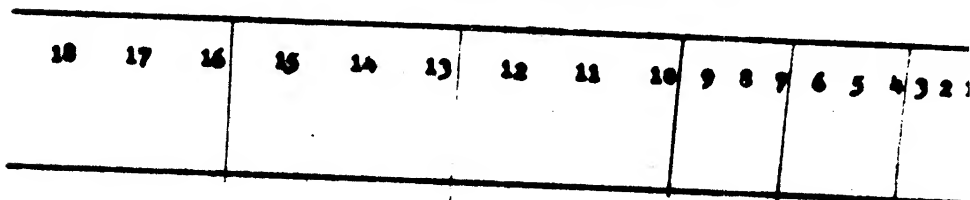
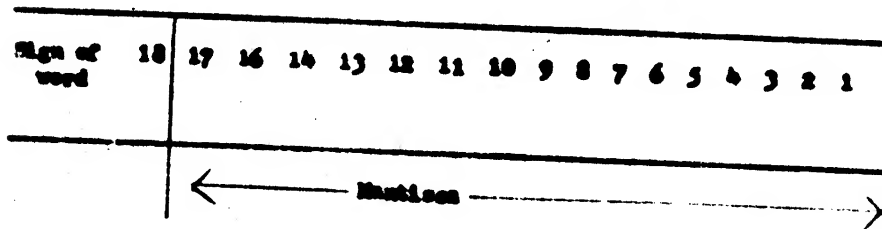
50X1-HUM

SECRET



- 11 -

FIG. 1.

a) Placing of binary word in complete locationb) Placing of octal word in complete locationc) Placing of binary word in incomplete location2) Placing of binary word in incomplete location

SECRET

50X1-HUM

**SECRET**

50X1-HUM

Execution of instruction "end K" (tick)  
incomplete location

15 14 13 12 11 10 9 8 7 6 5

Sign of change  
of address at  
the execution  
of the instruc-  
tion "Start  
cycle n"  
( )

Operation

Mark of  
complete  
location

b) Execution of instruction "end K" (tick)  
incomplete location

15 14 13 12 11 10 9 8 7 6

Operation

← Sign of  
word  
"X"

50X1-HUM

**SECRET**